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EFFECTS OF TRANSCATHETER AORTIC VALVE IMPLANTATION ON CORONARY BLOOD FLOW IN PATIENTS WITH SEVERE AORTIC STENOSIS

Oral Contributions
West, Room 2004
Sunday, March 10, 2013, 8:30 a.m.-8:35 a.m.

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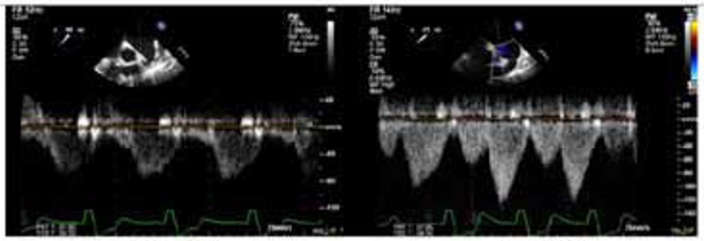
Background: Patients with severe aortic stenosis and nonobstructed coronary arteries are reported to have reduced coronary flow. Doppler evaluation of proximal coronary flow is feasible using transesophageal echocardiography (TEE). The present study aimed to assess the change in coronary flow in patients with severe aortic stenosis undergoing transcatheter aortic valve replacement (TAVR).

Methods: The left main coronary artery was visualized using TEE in 91 patients undergoing TAVR. The peak systolic and diastolic velocities of the coronary flow and the time-velocity integral were obtained before and after TAVR using pulsed wave Doppler.

Results: The mean age was 85.4±4.8 years. Mean aortic gradients decreased from 48.1±16.4 before to 3.6±276 mmHg after, p <0.001. The AVA increased from 0.57±0.16 to 1.9±0.2 cm2, p <0.001. Cardiac output increased from 3.38±1.1 to 3.72±1.0 l/min, p=0.005. The aortic systolic pressure increased from 120.4±21.1 to 136.0±28.1 mmHg, p=0.01. LVEDP decreased significantly 20.8±4.9 to 17.3±3.9 mmHg, p=0.02 after TAVR. The peak systolic velocity, peak diastolic velocity, total velocity time integral, and systolic velocity time integral and diastolic time velocity integral increased significantly after TAVR. (Table)

Conclusion: TAVR resulted in a significant increase in coronary flow as measured by peak systolic velocity, diastolic velocity, and velocity time integral using pulsed wave Doppler by TEE.

	Baseline	After valve implantation	p Value
Peak systolic velocity (cm/s)	24.2±9.3	30.5±14.9	<0.001
Peak diastolic velocity (cm/s)	49.8±16.9	53.7±22.3	0.04
Total velocity time integral (cm)	26.7±10.5	29.7±14.1	0.002
Systolic velocity time integral (cm)	6.1±3.7	7.7±5.0	0.001
Diastolic time velocity integral (cm)	20.6±8.7	22.0±10.1	0.04



Before TAVR After TAVR